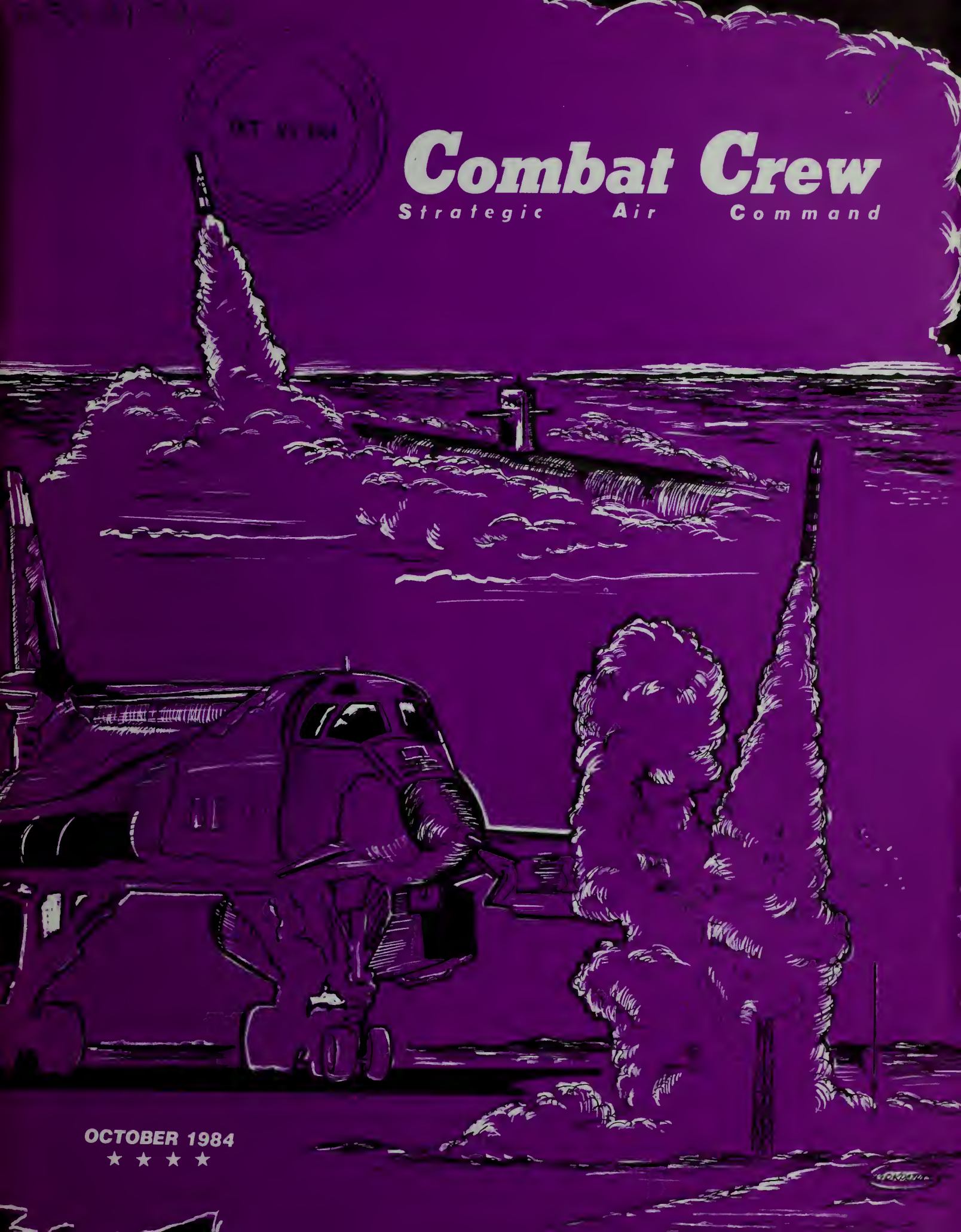




Combat Crew

Strategic Air Command

OCTOBER 1984

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Combat Crew

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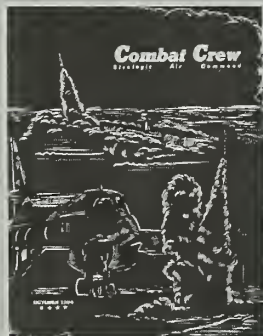
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ON OUR COVER

As the mid-Eighties approach, new weapon systems — the Trident, Peacekeeper, and B-1B — will enhance the success of our nation's strategic triad.

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COMBAT CREW is an internal publication of the Strategic Air Command with the primary purpose of promoting safety. The contents of this magazine are informative and not to be considered as directive in nature. Facts, testimony and conclusions of all mishaps printed herein may not be construed as incrimination under Article 31 of the Uniform Code of Military Justice. All names, dates and places used in conjunction with mishap stories are fictitious. Written permission must be obtained from Headquarters, Strategic Air Command, before any material may be reprinted by other than U.S. Air Force organizations. Use of funds for printing this publication has been approved by Hq. USAF, Distribution FX, controlled by IGFC SAC units submit distribution requests through local PDO. Reader to copy ratio 9:1. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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"SAFETY: A State of Mind, a Way of Life"

Brig Gen George Lee Butler
HQ SAC Inspector General



As I enter my fourth month in the Inspector General chair, I've finally caught up with my editor's deadline for an introductory article to *Combat Crew*. More importantly, I've had the opportunity to survey my responsibilities for safety in the Strategic Air Command and collect some thoughts, many born of painful experience, about the role of safety consciousness in our daily lives — both professional and personal.

After long reflection on twenty-three plus years of military service, having been witness and victim in a

terrifying array of mishaps and near misses, I am firmly convinced that instilling an unshakeable commitment to safety is the foremost responsibility of commanders and supervisors at every level. This is not to relegate mission accomplishment to secondary consideration, but to underscore my conviction that safety is inseparable from superior performance. Like the warrior spirit, safety is both a state of mind and a way of life.

My first lesson about letting my alligator jaws exceed my humming bird fanny came early in pilot training, on my thirty-hour check-ride. After a brilliant demonstration of air work, I entered a simulated flameout pattern at the aux field, put a grease job down exactly in front of Mobile and with visions of Thunderbirds dancing in my head, snatched the gear up at exactly one hundred knots, just as I broke ground. The IP almost grabbed the stick in time, but not quite soon enough to keep the left inboard gear door from hitting the runway. Needless to say, that narrowly averted disaster, reinforced by the bright red "U" on my grade sheet across from the word "safety," made an indelible impression. It drove home permanently the vital distinction between simply manipulating controls and being in charge of myself as well as the machine.

The ensuing years harbored more exciting lessons about the consequences of not only human frailty, but materiel failure, the hazards of combat and acts of God. I quickly learned that safety is a two sided coin. Preventing mishaps is only half the battle — surviving them requires at least equal self discipline and attention to detail. Twice in five years, on opposite sides of the globe, I had occasion to say a prayer of gratitude for the long hours spent mastering the techniques of ejection and parachuting. A one-swing into an Alabama corn field following Engine Failure On Takeoff, and a longer drop into the Gulf of Tonkin, convinced me for all time that emergencies were **not** something that happened to the "other fella." Learning **BOLD PRINT** items has never been a chore for me — it's the cheapest insurance I ever bought.

As time passed and I became responsible for the safety awareness of other people, I began devoting increasing attention to the causes and prevention of mishaps. As a wing commander, I was charged with the entire gamut of safety programs — flying, missile, weapon, explosive and ground — and the problems they address. Over the

course of two years, in wings of widely different scope, I was directly involved in the consequences of a Class A flight and ground mishap; fatal automobile and motorcycle accidents; serious industrial injuries; and a drowning death. In every case, human error was involved and sound safety practices were blatantly ignored.

Walking through the blackened wreckage of a transient B-52 which crashed off the end of my runway, I shook my head in agonized wonderment over the series of errors which brought nine lives to such a tragic conclusion. Some months later I watched in horror as thousands of gallons of JP-4 poured from the ruptured wing of a B-52 on my mass parking ramp, the consequence of an unauthorized maintenance procedure which had been in practice for years in the Fuel Cell repair shop . . . a time bomb just waiting for the right combination of inexperience, distraction and irresponsibility to explode.

Equally unsettling were the 0200 phone calls from Command Post bringing the news of additional evidence that drinking and driving don't mix. "Sir, this is Captain Jones. Sorry to wake you, but I've just been informed by the highway patrol that Airman Smith from OMS was killed in a one car crash just north of the base. All notifications are being made at this time." The rest is predictable — the BAT of .14; the stunned young widow and grief stricken parents; the memorial service and sense of needless loss; and a grim determination to keep it from happening again.

Is there any doubt that I became extremely tough on the subject of safety? Woe betide the miscreant who deviated from tech order procedures in my wing; or dared to drink and drive; or failed to wear seat belts. I taught safety from every pulpit, in every publication, at every opportunity. Proper training, orderly work environment and individual discipline became an obsession — I felt my responsibilities deeply.

And, I still do. At my present level, I am chiefly concerned with safety education — the positive aspects of understanding and awareness. My job is to help you appreciate the hazards of our profession; to avoid making the same errors which have brought others to ruin; and to search out the pitfalls as new equipment and procedures come on line. Above all, I want you to share my own preoccupation with safety — **to make it a state of mind and a way of life.**★

Put To



KIRKPATRICK CREW
= SEPT 84 =

The Test

1Lt Jon A. Eller
351 SMW, Whiteman AFB

The 8th of April of 1984 began like many other spring days in west central Missouri, cold rain with the thermometer sitting on 48 degrees. In their alert capsule at Juliett 01, the missile crew was unaware of the miserable rain falling 60 feet overhead. Amid the rustle of cooling air, the flicker of panel lights, and the jingle of bells and alarms, the crew methodically processed their checklists. Three-Two-One-Mark! Both crewmembers simultaneously turned keys and watched their panels as two of their missiles reported launch-in-process.

The 8th of April was not "The Day After" or "The Day Before," but rather an important day in a test called **Giant Pace 84-2**, a valuable simulated electronic launch test sequence at the 351 Strategic Missile Wing. The key-turn by the crew was only a small part of the Giant Pace 84-2 Simulated Electronic Launch Minuteman (SELM) conducted at Whiteman AFB this spring.

The test began on 18 March with configuring the test launch facilities (LFs) and ended on 28 April when all test sorties were returned to normal alert. In the interim, Whiteman personnel worked 8000 extra man-hours, making 263 trips to remote missile sites and driving 43,800 highway miles. In spite of this extraordinary effort by the men and women of the 351 SMW, SELM is the most reliable and cost effective method to gather reliability data on the Minuteman force. Extensive Headquarters SAC and Air Force Logistics Command (AFLC) effort is also required for SELM testing. AFLC provides special engineering personnel support and instrumentation equipment at

the test wing and aboard the test aircraft; SAC also provides representatives and the 1st Strategic Aerospace Division provides a test conductor who prepares the test sequence document and directs countdown activities.

Actual Minuteman test launches are periodically conducted at Vandenberg AFB and they provide

**"Three-Two-One-Mark!
Both crewmembers simultaneously turned keys and watched their panels as two of their missiles reported launch-in-process."**

valuable performance and flight data. However, these launches do not give reliability data for deployed ground system hardware. Launching from representative silos at Vandenberg is equivalent to testing all ALCMs from the same B-52 aircraft. SELM testing was directed by the Air Staff in the early 1970s to supplement flight data and to provide a complete picture of Minuteman performance and reliability. Since then 44 SELM tests have been performed; Whiteman has participated in ten. The importance of SELM cannot be overemphasized — it provides our only method of testing critical enable and launch commands in the deployed Minuteman force. The only positive assurance of launch critical events is the actual "key-turn" which SELM provides. Over the years SELM has identified force-wide problems that could not have been discovered by flight tests.

The methodology of SELM is

quite complex and requires the concerted effort of the entire base. To put one launch vote into the system both crew members at one launch control center (LCC) must key-turn simultaneously within a two second tolerance. This provides one launch vote; two votes are required to execute a complete launch command. When the two votes are received, the missile enters terminal countdown (TCD). TCD is a computer routine which prepares the booster and LF for fly-out by putting the guidance set into its flight program, activating guidance set batteries, firing LF ordnance to retract the umbilical, arming the suspension system, and issuing the first stage ignition signal. During SELM, the LF battery and silo door activation are not tested and fly-out is inhibited.

SELM is based upon the smallest Minuteman unit composed of a flight of 10 LFs and their parent LCC. To provide the required "two vote" immediate launch capability, an additional LCC must be tied into the test flight. In Whiteman's configuration this requires tying in an additional LF and consequently the test uses two LCCs and 11 LFs. Special test equipment was installed at each site which electronically isolated each LF from the rest of the operational facilities in the squadron to prevent any possibility of missile ignition. Test equipment prevents each missile from actually launching and electrically isolates them from the operational squadron. The last SELM isolation action was completed on 4 April. During the next two days an inspection of test LFs was conducted and a countdown dry run was performed which verified electrical isolation. All

PUT TO THE TEST CONT'D

this preparation was required to prepare for the ground test on 8 April and the airborne test on 10 April.

Ground day crews were required to put in a 36 hour alert. Under overcast, gloomy skies and cold rain they dispatched on 7 April at 1500 hours local time. After arriving at the LCCs they went into rest status topside until 0100 hours local on 8 April. They assumed alert duties at 0200L for the start of the ground test. During this same time frame, LF test evaluation teams penetrated J04, J11, J02, J06, J07, and J09 LFs. These LFs would be simulated launched during the ground phase. A special test command post (TCP) was assembled at the support base and as the ground test began, all crews in the 509th SMS, Squadron Command Post crews in the 508th and 510th, and the TCP were linked together on a special test net so that test actions could be monitored and coordinated down to the smallest detail. After all elements were in place, ground day tests proceeded smoothly with crews executing the six designated missiles in three separate simulated launches. At 0514L sorties J04 and J11 were committed; at 0805L sorties J02 and J06 were committed; and at 1105L sorties J07 and J09 were committed. All the simulated executions were a complete success, including J02 which had been operating on battery power for over 18 hours.

The results of the **Giant Pace 84-2** ground day were very exciting, given the success of all six sorties. The ground test demonstrated the capability of the SAC command control elements, Minuteman operational ground equipment and aerospace vehicle equipment to accomplish a commit of sorties in accordance with current Emergency War Order (EWO) directives and timing. The test launch of J02 demonstrated the missile guidance system umbilical release and retract,

lateral restraint system activation and launch capability during emergency power operation. The ground test demonstrated ground capability of crews to enable, send preparatory launch commands, inhibit launch, and launch their Minuteman sorties. Other test objectives such as the ability to send critical commands while operating in anti-jam were also successful.

On airborne test day the crews of the 509th SMS dispatched at 0400L. They had to be in place by 0800L to process LF test evaluation teams into the remaining five SELM LFs and to establish a net with the TCP. Extra maintenance teams and technical advisors were also standing by to ensure the airborne tests went smoothly. The Airborne Launch Control Centers committed sorties J03 and J08 by execute launch command at 1202L, J05 and J10 by selective automatic launch command at 1309L, and K09 by all call automatic launch command at 1347L. The airborne tests were also a complete success.

The airborne test demonstrated the ability of airborne LCCs to participate in the launch of Minuteman sorties. The ALCC successfully transmitted preparatory launch commands, enable commands, inhibit commands, and auto commands in the direct mode. During the airborne test, the Minuteman ground electronics correctly processed ground and airborne critical commands while operating in anti-jam and demonstrated the ability of inhibit command to remove enable and launch commanded status. The airborne tests at J03 demonstrated the ability of a sortie to process ALCC UHF commands through ground retransmission even though its UHF receiver is inoperative.

One of the most notable aspects of SELM is its cost effectiveness. A typical test flight at Vandenberg costs about 5 million dollars, but gathers a relatively limited amount of

data. The cost for SAC to perform a SELM test is only about 74 thousand dollars and a tremendous amount of information is collected. What do we get for this expense? When all was said and done, Giant Pace 84-2 increased the confidence in the launch reliability of the Minuteman force, provided launch reliability data for SIOP planning and the Minuteman Weapon System Effectiveness Program, and provided early detection of failure modes and sources of unreliability in the Minuteman force. In addition to these benefits, Giant Pace 84-2 fulfilled 18 other test objectives.

Safety is of paramount importance during SELM testing. The chief of safety must be a part of the TCP and give the go ahead for all test sequences. He must also insure safety monitoring of SELM activities throughout the test period and verify weapon system safety rules have been met and are being applied. As an added safety measure, instructions for airborne test are sent out by message to other WS-133AM units to guard against the unlikely possibility of entering their command and control systems.

Giant Pace 84-2 was conducted in conjunction with Global Shield 84, a SAC directed exercise designed to enhance readiness and test the ability of the command to carry out orders which support the United States national policy. This was the first time a SELM test has been integrated into an exercise of this magnitude, which makes the success of the tests an even more gratifying accomplishment. It required the concerted effort of maintenance, operations, communications, safety, command post, codes division, operations and maintenance training, plans and intelligence, security police, ALCC, transportation and many base support agencies. In short, it was a highly successful team effort which reaffirmed the safety, reliability and readiness of Minuteman as a vital element of nuclear deterrence.



B-1B CCTS Selection Process



What are the requirements for B-1B CCTS Duty?

What is the status of the selection process?

Answers to these questions and more follow . . .

Maj John Priecko
Chief, Bomber/Reconnaissance Assignments

Based on numerous questions from the field, there's a lot of interest in the B-1B Combat Crew Training School selection process. A five-phase effort to choose the "best of the best" of SAC's bomber instructor force for the B-1B CCTS at Dyess AFB is well underway.

Phase I, II and III are already complete. The effort started in July as an objective computer program determined eligibles who met CINCSAC approved flying and quality criteria.

Phase III began the first of August. B-1B CCTS Candidate Evaluation Packages were sent to wing commanders for their input. Wings completed flying evaluations, provided standardization/evaluation recommendations, and forwarded copies of flight records. Those actions are complete and results have been returned to SAC Headquarters for pre-selection board processing.

Phase IV is subjective. A formal board composed of the Numbered Air Force Deputy Commanders for Operations and four wing commanders convened the first of October to review records, wing inputs and provide a prioritized list of candidates. Individuals will be scored against a 6 to 10 point scale, similar to promotion boards. Competition will be tough.

Phase V focuses on aviator skills and personal interviews. Each pilot finalist will travel to Beale AFB for 2 to 3 T-38 evaluation flights. All finalists will be interviewed by the Dyess AFB B-1B wing commander. Fol-

lowing review and approval by the 15th AF Commander, a final list will then be made and results released in early January with some 25 B-1B CCTS aircrews selected.

Direct any questions concerning the B-1B CCTS process to Major John Priecko, HQ SAC/DPROR, Autovon 271-4260/4298.

B-1B CCTS Candidate Criteria

Individuals must:

- Be current and qualified in the B-52 or FB-111 with at least three years in a SAC bomber weapon system.
- Be or have been an instructor/evaluator for at least one year.
- Have the following minimum total flying hours:
 - Pilots..... 2,000
 - Radar Navigators..... 1,800
 - Electronic Warfare Officers..... 1,500

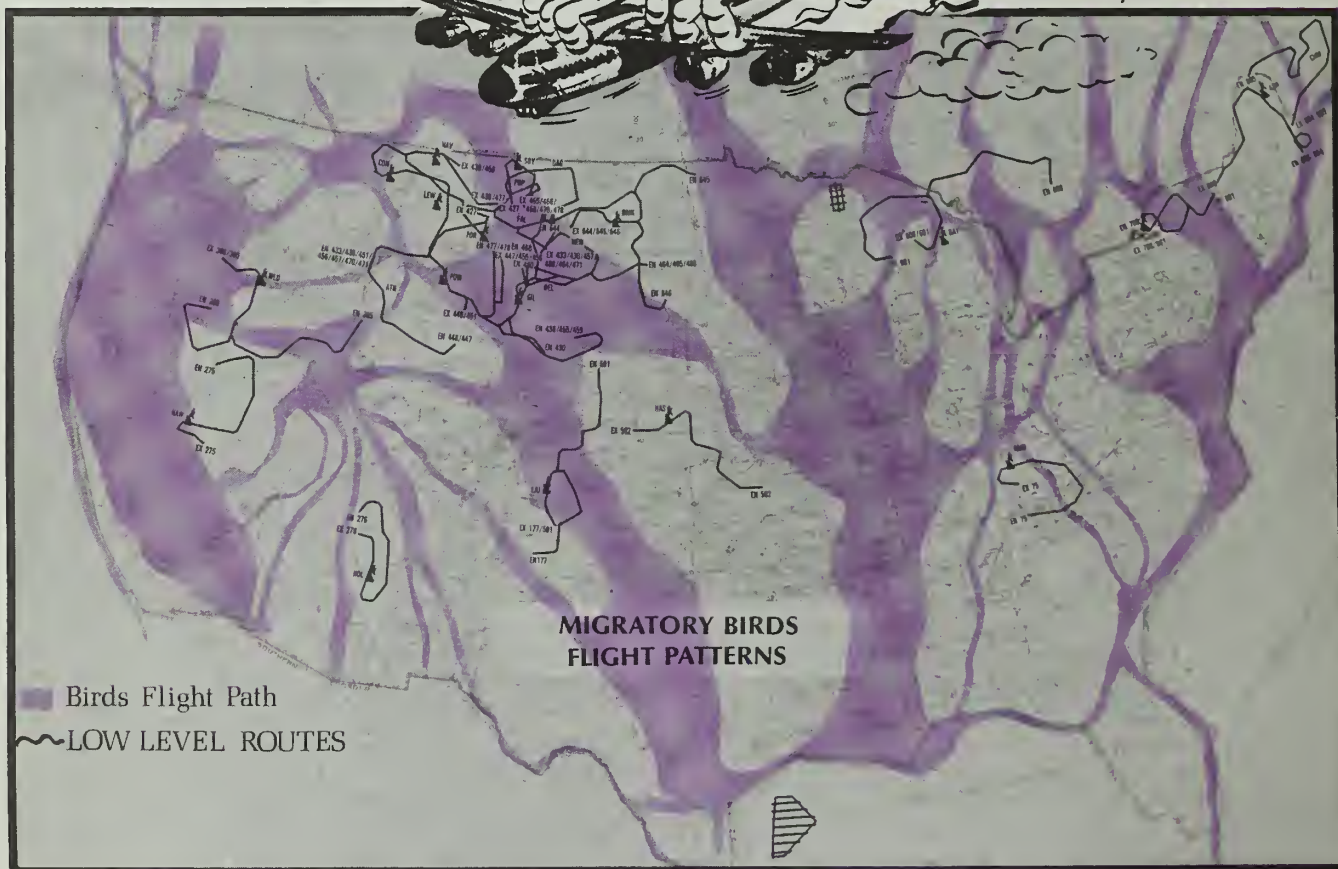
Candidates must also have:

- No current deferments.
- No Unfavorable Information File, Digest File, or other negative quality force indicators.
- No derogatory assignment availability codes (AFR 36-20, Table 2-3, limitations like drug abuse rehabilitation, Article 15, etc.).
- An Aviation Service Code indicating a 'flyable' resource.

If You Ever Doubted . . .

BIRDS DO FLY . . . IFR

Editor's note: This article originally appeared in a previous issue of *Combat Crew*. Although some statements may be dated, information on bird migration and bird strike statistics are current.



Take it from the reports of pilots and other aircrew members who have ended up with a fowl in the lap, birds do fly IFR, VFR, at night, in the day, at low level, and at high level. In fact, birds can and will fly any time and any place SAC aircraft fly!

One B-52 aircraft commander, on a recent low level flight, reported this encounter with the birds.

"Upon completion of A/R track, we proceeded to our low level entry point at 2130Z. The route was flown entirely within the specified corridor and altitudes in accordance with FLIP planning section IIA and Low Level Route Depiction Chart. At approximately 1 plus 23 after entry, we had accelerated to 325 KIAS. At 2253Z we emerged from an 8/10ths coverage IFR cloud deck and immediately saw 10 to 12 birds. My first impression was a flight of ducks. I later realized they must have been geese.

"Less than one second after sighting the birds, there were multiple impacts both felt and heard by the crew. I tried evading in the form of a slight climb, but the birds hit even before I could move. As a result, no evasion was accomplished due to the almost simultaneous sighting and impact. I immediately checked my wing and the copilot his. The initial observation revealed what we thought to be only blood on the leading edge of both wings, and number 4 engine center dome cowl. Number 4 engine sparked momentarily from the tailpipe, but no apparent damage occurred that could be determined by engine instruments. At this point, I made slight turns and climbs and descents to try to determine any damage to flight surfaces. None was apparent.

"I leveled off at 33,000 feet and opened the slip-way doors so that I could illuminate the wings. Again, as at low level where this procedure was also used, the best we could determine were possible dents in the wings and number 4 engine. These might have been holes, but it was impossible to determine this at night, in flight. I elected to abort our high altitude bomb run and return to base for landing."

Postflight revealed actual damage. There were ten bird strikes; however, only two of the strikes were reported as viewed from the cockpit. The two visible strikes were the damage to number 4 engine and the leading edge of the left wing. Unknown to the crew, the other bird strikes imparted extensive damage to the secondary structure.

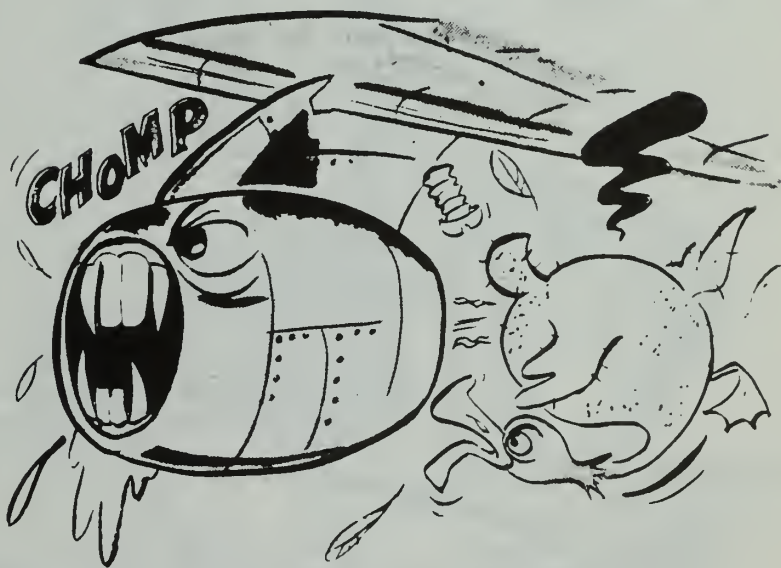
The Boeing Company and various Air Force agencies have compiled statistical information on bird strike history and the effects on aerodynamic loading on damaged secondary structure. The significant feature of this data indicates that the most hazardous period of low level flying is the months of September through November with the peak period in October. The chance of incurring a birdstrike at night is about the same as it is in the day. However, an analysis indicated that the probability of incurring a bird strike during the dawn/dusk period was ten times the day rate and seven times the night rate. Although the majority of birdstrikes occur in clear air, they have occurred in or very near IMC conditions. Also, flight below 300 feet AGL dramati-

cally increases the chance of hitting a bird. Initial damage to a secondary structure can be compounded by high speed flying. The aerodynamic loading is 380 pounds per square foot at 325 KIAS reducing to 220 pounds per square foot at 250 KIAS. The Boeing Company advises that progressive damage to an initial bird strike is greatly negated at 250 KIAS or less. Conversely, higher speeds, which increase aerodynamic loading, may cause secondary structure damage to progress to primary structure damage.

Bird remains from the preceding B-52 bird/aircraft strike turned out to be Canada Geese, *Branta Canadensis*. The large fowl usually fly around 6000 to 8000 feet altitude, occasionally flying above 10,000 feet. They have also been spotted at 15,000 feet a few times. They migrate mostly at night; however, movements in the daytime from feeding to resting areas take place daily in the migratory and wintering periods.

Canada Geese depart from staging areas in James and Hudson Bays from late September through October with peak departures in mid-October. The reverse in the spring commences about February 15 and extends to May 1.

Cluttermucking Canada Goose



Canada Geese, whistling swans, snow geese, mallard ducks, pintail ducks, and double-crested cormorants make up an unlikely rogues gallery. Unlikely or not, pilots should be on the alert for such fine feathered friends and other migratory waterfowl during the next six to eight weeks. Birds of these species are considered to be particularly hazardous to aircraft in the spring and fall migrations because of their size, their large population, and their habit of flying in dense flocks. Pilots are especially warned not to fly directly below migrating flocks of swans, geese or ducks since they tend to dive when approached closely by aircraft.

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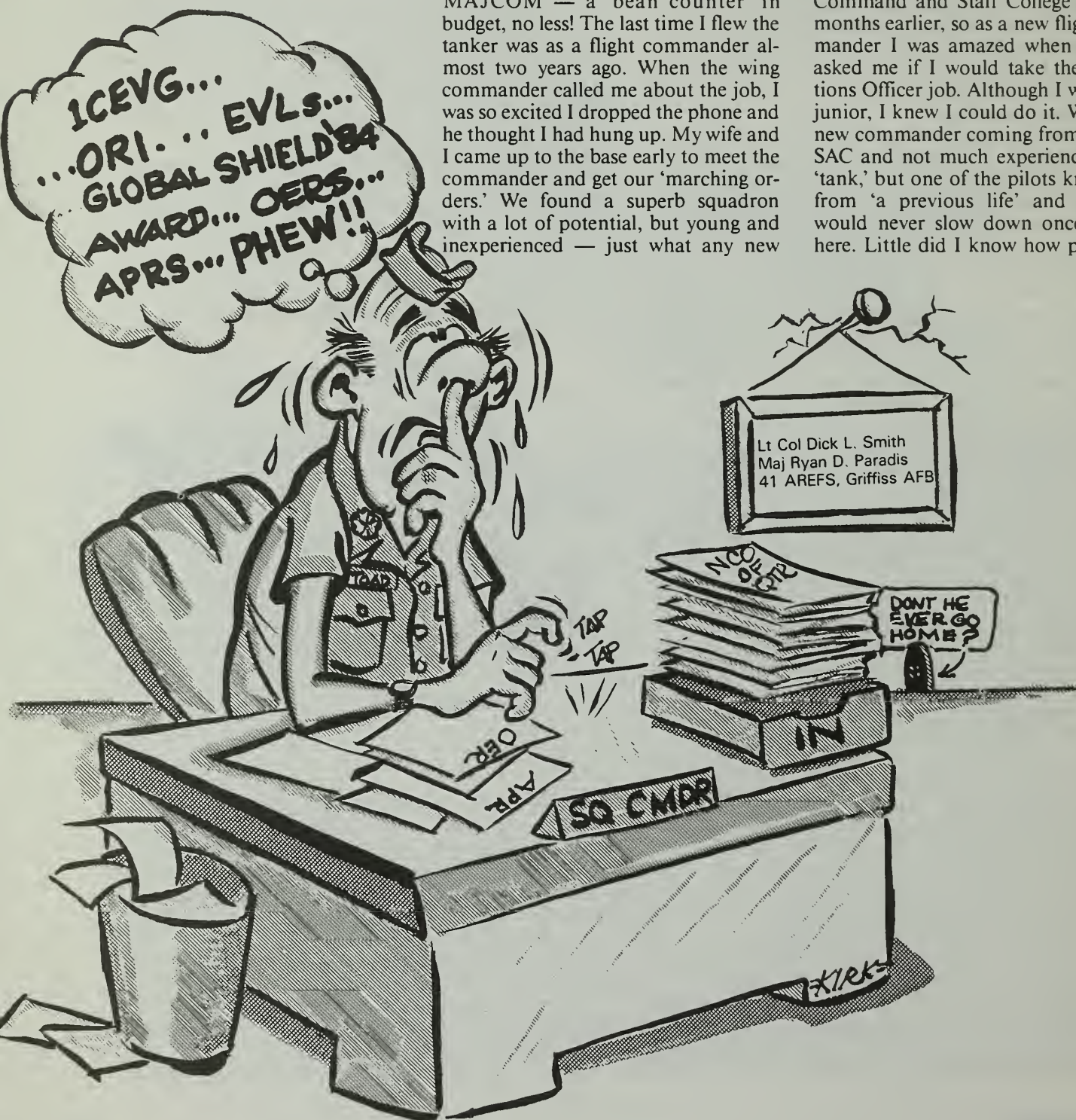
The First 100 Days

CC and Ops Officer: Well, here it is — the dream of a pilot's lifetime. We have been selected as the new squadron commander and operations officer of one of SAC's KC-135 units. No two guys could be more thrilled — and yet, then no one could foresee the next 100 days!

CC: I came from the staff of another MAJCOM — a 'bean counter' in budget, no less! The last time I flew the tanker was as a flight commander almost two years ago. When the wing commander called me about the job, I was so excited I dropped the phone and he thought I had hung up. My wife and I came up to the base early to meet the commander and get our 'marching orders.' We found a superb squadron with a lot of potential, but young and inexperienced — just what any new

guy with lots of bright ideas saved up for 15 years would dream of. We had never been north of Blytheville, but the snow country (almost) was no drawback to the exciting opportunity in any officer's career. The ops officer would just be starting the job the same week too — this is a little unusual, but a nice beginning for a new team.

Ops Officer: I had come out of Air Command and Staff College only six months earlier, so as a new flight commander I was amazed when the DO asked me if I would take the Operations Officer job. Although I was fairly junior, I knew I could do it. We had a new commander coming from outside SAC and not much experience in the 'tank,' but one of the pilots knew him from 'a previous life' and said we would never slow down once he got here. Little did I know how prophetic



that was to be. Still, that's what we needed to get this really super squadron going in one direction.

CC: Like everyone else who moves in mid school year, I had my problems, too. A house in Washington, D.C. with a big payment and a daughter who was a senior in high school. So, my wife and I agreed I would move up for 90 days, live in the BOQ and they would follow as soon as my daughter graduated. Nothing much happens in the first few months, especially when both guys are brand new, and my frau could commute up for the big events — a piece of cake. Besides, the time to get checked out and get our program going would take a lot of hours, so three months of uninterrupted work would get us off on the right foot. We would have a lot more free time to get ready for the 'biggies' (ORI, ICEVG) after she arrived.

Ops Officer: The 'boss' was coming up as a class 'B' bachelor until his daughter got out of school — so my wife volunteered to steer him through the social amenities until his bride got here — squadron wives' club, OWC, and unit parties all became hers to organize, plus keeping up with me in my new 14 hour a day job. However, the four of us hit it off real well, so we felt it was the best compromise. Besides, it gave us some time to work together before we met the dreaded tests — ORI and ICEVG.

CC: Right after the change of command, we got busy. We created a new executive officer's job to corral the admin problems, put a lot of emphasis on the Flight Commander system because we had some field graders just waiting to lead, and started a fairly intense social schedule to enhance our esprit de corps. All of these seemed to be very effective and our weekly staff meetings were full of good ideas on how to make things even better. Also, I was busy checking out as an IP in the 'tank,' flying ACE every week with the copilots and generally having a wonderful time. BOOM! Two weeks into the job and our friends from the south (ICEVG) showed up to help us. Now we were really scrambling, but there's not much we could change. Besides, it's almost all up to the flyers — and they were fired up to show their stuff. When

it was all over, we had the highest testing score in the command and 24 for 24 perfect evaluations. I had a lot of gray hair but it was a successful evaluation and showed both of us what the squadron was made of.

Ops Officer: We were certainly proud of the guys and gals for their performance on ICEVG — and less than a month later, we got to do it again. This time it was Global Shield '84 and we were really swamped with the generation, testing and flying — es-

“When the wing commander called me about the job, I was so excited I dropped the phone and he thought I had hung up.”

pecially since neither one of us had participated in an aircraft generation in several years. But again the squadron showed what professionalism, competence, and enthusiasm can do. We were really pleased. But no rest for the weary, we were running out of the semester and were super vulnerable for the ORI. Now was the big inspection, so we were working even harder with tests, practice generations and briefings.

CC: The ORI was not a surprise, but it was a lot of work. We generated and flew every tanker on the ramp because our support unit had its runway closed. No margin for error — and they didn't make any. It was heartwarming to see how hard they worked and how much they wanted to excel. We were bushed when it ended, but the semester was over! Finally!

Ops Officer: I sat in my office after the ORI team took off and looked at my scheduling board. We had been scrambling for almost 100 days and I have never worked harder in my entire life. But we had won — an “Outstanding” on every evaluation they could throw at us. The guys and gals in the squadron had a new and exciting sense of pride. They were young (e.g., only two captain Navs — all the rest were lieutenants), inexperienced, but really motivated and they had done the job. It was a wonderful feeling.

CC: Through it all, we had another set of priorities too. In the first 100 days

we established a Crew of the Quarter program and a Crew Chief of the Quarter with our OMS squadron. We also named our first officer, Sr NCO, NCO and Airman of the Quarter Award winners — and the officer won it for the base, had unique and exciting parties each month sponsored by the flights, expanded Commander's Call to include a lot of new ideas, accelerated our 'Spouse Along' program so over one third of all bomber/tanker wives have already flown, nominated deserving people for STEP promotions, and generally worked the people issues hard — because it's people who made all this happen and they deserve to be rewarded. Even our admin staff section has been involved — letters to parents, OERs/APRs/Awards and decorations. Everybody's involved!

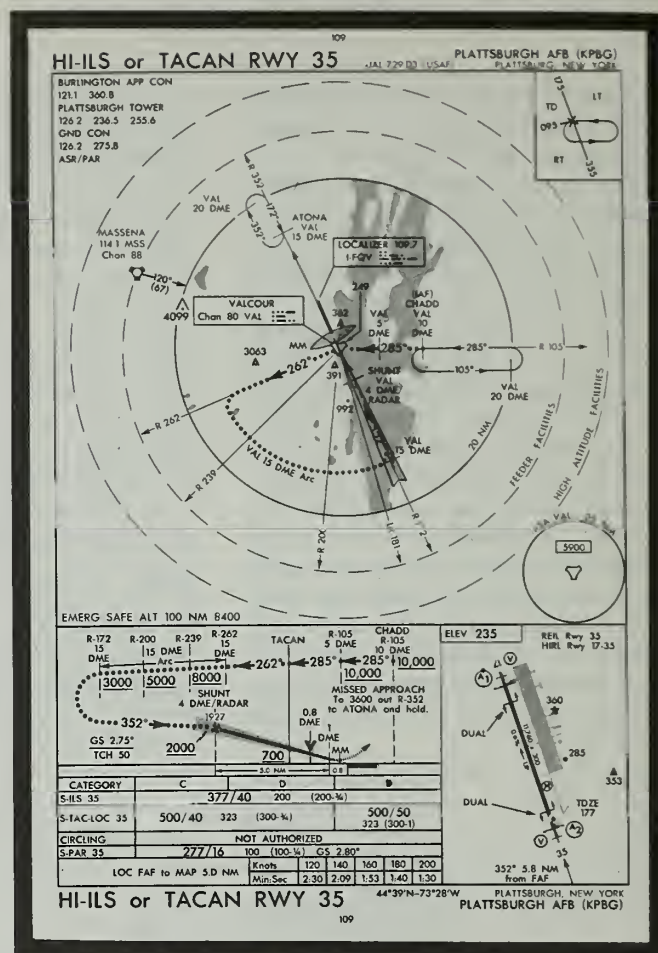
CC and Ops Officer: We never would have believed it four months ago. This has been an experience neither one of us will forget. We have been part of the coming together of a squadron — a synergism neither one of us has seen before. The chemistry was right — from the senior leadership who gave us a lot of latitude to try some new and unorthodox ideas — to the mid-level managers who were given a chance to lead — and did, — to the squadron pilots, navs and booms who took SAC's three toughest tests and were “Outstanding” on them all. Most of all it was a sense of professionalism which came to the forefront, matured and continues to be the driving force in the squadron.

We have made some mistakes — thankfully none have been so severe we couldn't recover. And we have a long way to go — we just got started. With both wives working along beside us, we are doing even more. The most important thing we learned was you can't do it yourself. There are 85 other people who make things happen. You can provide guidelines and keep the train on track — but sometimes you feel like you're in the caboose instead of the engine.

For those of you who want to be a squadron commander/operations officer we all wish you the best of luck — it's the most exciting time of your life. This is what being an aviator is all about. But those first 100 days . . .

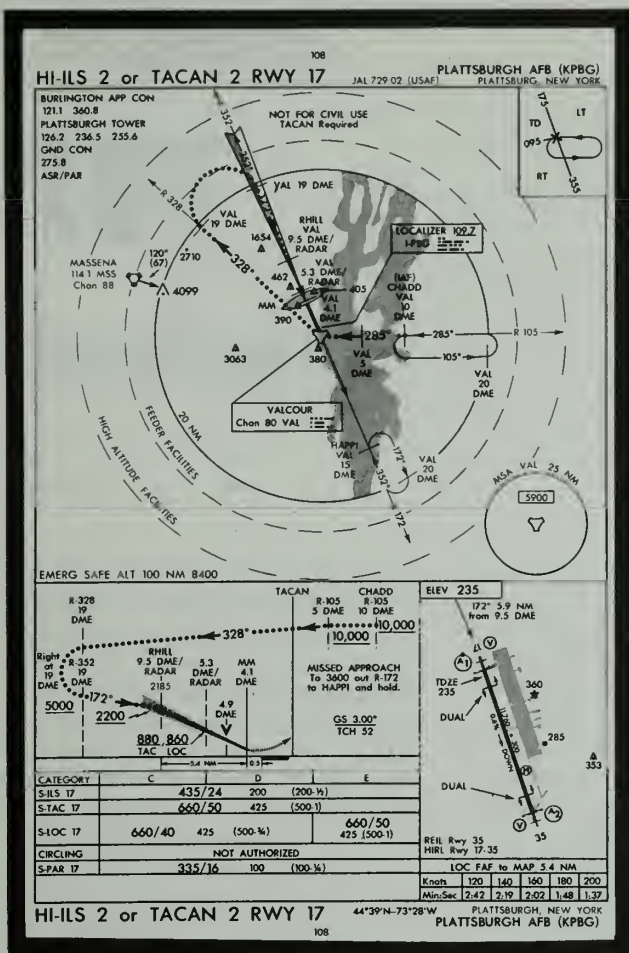
How Safe Is 2400 RVR and 200 HAT?

Co-pilot: SIFC 23 turning left . . .



To answer these questions we need to look at how the RVR for a runway is determined. The RVR for an approach is dependent upon aircraft category, HAT, and type of approach lighting. The aircraft category is fixed, the **published** HAT is fixed, therefore the approach lights must affect the RVR minimums. Looking at the lighting on the airport sketch we see that RWY 17 has ALSF-1 and RWY 35 has SALS (same as the inner 1500 feet of ALSF-1). The approach designer obtains the basic RVR minimums for approaches from AFM 55-9 (TERPS) Table 10. Looking at an excerpt

FIGURE 2.



from the table (Fig. 3) an ILS approach with a 200 foot HAT, aircraft category “C,D,E” and ALSF-1 requires 2400 RVR. Continuing across the table to the SALS column, the RVR increases to 4000 feet. This is the reason the ILS RVRs are different for each runway.

How does this affect the PAR? The PAR for each runway is published requiring a 100 foot HAT. Going through the table with a 100 foot HAT, the RVR required for ALSF-1 and SALS lighting is the same — 1600 feet. This is the RVR found on the approach plate. AFR 60-16, SAC Sup 1 states that approach and landing minimums are modified to RVR 2400 and 200 foot HAT or the approach minimums, whichever is higher. This increase in HAT and RVR doesn't consider shorter lighting systems which are present at many SAC airfields. If the lighting requirement was included, the RVR required would be 4000.

Does this prevent a crew from completing the approach to a landing with a 3000 foot RVR? No. But at DH, be aware that we may not see the approach lights, the runway threshold, or other identifiable runway markings. With ALSF-1 lighting (normally 3000 feet long) we will be over the beginning of the approach lights when we reach our DH (Fig. 4). This gives us a better chance of identifying the approach lights and runway threshold to complete our approach to a safe landing. When flying an approach to a runway with SALS (only 1500 feet long), at the DH we are still 1500 feet from the beginning of the approach lights, decreasing our chance of seeing them (Fig. 4). This is why Table 10 in AFM 55-9 shows we need an RVR of 4000 feet. If the runway didn't even have approach lights, the RVR requirement would still be 4000 feet (see Figure 4). This reflects how little credit is given to SALS lighting in low visibility conditions.

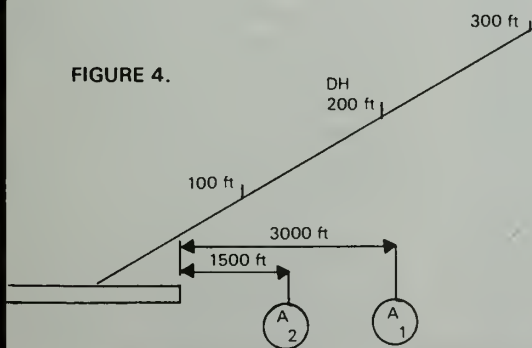
Was it unsafe for the crew to fly a PAR approach to a runway equipped with SALS and less than 4000 RVR? No, if the crew realized that the short lighting system would make the decision required at the DH more critical than usual, and had planned for the possibility of not seeing the runway. Yes, if they hadn't thought beyond the modified visibility requirements and were not ready to make the instantaneous decision required to safely complete the approach to landing.

If you find yourself in this position, you need to be aware of the increased possibility of going missed approach. If fuel is a problem, it might be more prudent to continue to an alternate (hopefully one closer than Tyndall), rather than taking the chance on a minimum visibility approach to SALS equipped runways.

FIGURE 3.

		ALSF-1		SALS		NO LIGHTS	
HAT	CAT	MILE	RVR	MILE	RVR	MILE	RVR
100	A-E	¼	1600	¼	1600	½	2400
200	C,D,E	½	2400	¾	4000	¾	4000

FIGURE 4.



TITAN

The Few and the Proud

Capt Harold
SSgt Francis
4315 CCT

"390th Command Post" . . .

"Command Post this is Colonel Chambers at complex 570-05, we are OFF ALERT as of 1600 Zulu." These very familiar words, that have been spoken many times by Titan II crewmembers without a second thought, were heard for the final time at Davis-Monthan AFB, Arizona, on 21 May 1984. After thousands of man-hours, the final stages of the Titan phasedown and highly successful strategic mission of the 390th Strategic Missile Wing (SMW) were complete.

On 2 October 1981, Frank P. Carlucci, Deputy Secretary of Defense, ordered the deactivation of the Titan II weapon system as soon as possible. On 31 July 1984 the 390 SMW was deactivated leaving Titan II missiles at McConnell AFB, Kansas and Little Rock AFB, Arkansas to be retired in 1987.

But where does the Titan II story begin? In October 1959, Headquarters USAF approved the development of an improved Titan Intercontinental Ballistic Missile (ICBM). This missile would possess an all-inertial guidance system and be launched from a hardened underground silo. The Titan II was to be an interim missile, with a seven year life expectancy, until the Minuteman force was complete and operational.

In May of 1960, Headquarters USAF awarded the Martin Company a research and development contract for the Titan II. The 103 foot Titan II made her maiden

voyage on 16 March 1962. Delivering 430,000 pounds of thrust, the mighty Titan lifted from the launch pad at Cape Canaveral, Florida, for its 5000 mile flight down the Atlantic Missile Range. On 16 February 1963, the first underground launch of a Titan II took place at Vandenberg AFB, California. Construction was already underway and nearing completion for the activation of three Titan II missile wings each having two squadrons of nine missiles. On 8 June 1963, SAC accepted the 570th Strategic Missile Squadron at the 390 SMW, the first operational squadron at Davis-Monthan AFB. The 381 SMW, McConnell AFB, became operational on 12 December 1963. The final squadron to be accepted by SAC was the 374 SMS, located at the 308 SMW, Little Rock AFB, on 31 December 1963.

While many records were set by the Titan II system, none was more notable than having the first women crewmembers. This significant milestone occurred 18 August 1978 when A1C Tina M. Ponzer, assigned to the 381 SMW, became the first woman to perform Titan II alert duty. On 16 September 1978, 1Lt Patricia M. Fornes, also assigned to the 381 SMW, became the first woman officer to perform Titan II alert duty.

While the statistics are impressive in themselves, the Titan II track record could not have been maintained without the dedicated men and women who make up the



Titan II, and the Proud

Baugh, Jr.
Neumann
Vandenberg AFB

combat crews. The Titan II missile crew consists of four crewmembers, two officers and two enlisted members. The missile combat crew commander has overall command of the launch facility in all situations and manages all operations including maintenance, emergencies and launch operations. The deputy missile combat crew commander's responsibilities include helping the commander manage the complex, coordinating checklist actions and monitoring ten communication systems. The missile systems analyst technician is the crew's electronics expert, responsible for the operation and trouble analysis of the missile guidance system and launch control set. The missile facilities technician performs the operation, checkout, and malfunction analysis of the complex's 12 levels of support equipment. This equipment includes air conditioning, power production and distribution, air compressors, water and hydraulic systems.

A Titan II crewmember's extensive training began at Sheppard AFB, Texas. Here, the basics of the major subsystems such as electronics and hydraulics were learned. Emphasis was placed on how to use technical data and the trouble analysis of the missile and support systems.

At the completion of this training, the future crewmembers moved west to Vandenberg AFB and the 4315th Combat Crew Training Squadron (CCTS). While temporarily assigned to the 4315 CCTS, students received their initial

Emergency War Order (EWO) training. After completing EWO and classroom training, the students entered the simulator phase. They began with very basic checklist procedures and crew management techniques. Upon completion of the 12th day of simulator training, students could handle checklist actions and accomplish trouble analysis procedures.

The last leg of initial training was conducted at their respective wing. These final six weeks were dedicated to extensive hands-on training at the missile site and orientation to local procedures. From start to finish the total training time averaged six to seven months.

The men and women of the Titan II crew force take pride in knowing each of them have contributed to the mission of keeping the peace. As the end draws near, we face the problems that all too often accompany a phasedown. We will have to adjust to being moved early and dealing with many different people. The thing to remember is that we are a very elite team of professionals. We must continue to work together as we have in the past so as not to jeopardize our primary mission of deterrence.

Soon the Titan II will join a select gallery of SAC weapon systems that have deterred war for many years. We at the 4315 CCTS commend the Titan II crew force both past and present. May we never forget that although the "sleeping giant" is put to rest, memories will live forever.





MSgt Odie R. Davidson, Jr.
IBO, CFIC, Carswell AFB

UTILIZING YOUR RESOURCES

While on a Pacific Tanker Task Force mission, the boom operator went to the pod to refuel two F-4 aircraft. After climbing into the pod, the boom operator noticed a small stream of hydraulic fluid leaking from the sighting door actuator hydraulic line. As the refueling operation progressed the leak worsened. By the time the second receiver had finished refueling, hydraulic fluid covered almost the entire sighting window and the pilot advised the boom operator that the right system was slowly decreasing. The leak continued after air refueling and soon the quantity had dropped to three gallons.

"Pilot, Boom, I've got an idea on how to stop this hydraulic leak."

"I'm all ears, Boom," came the reply from the cockpit.

After explaining his intentions, the boom operator maneuvered the sighting door level until the sighting door started opening. Once the sighting door was partially open, he neutralized the sighting door lever, causing the sighting door to remain slightly open.

"Hey, the leak has stopped back here."

"Boom, Pilot, the quantity appears to be stabilized at 2½ gallons. Whatever you did back there just solved the problem."

Net result — two F-4 aircraft safely on the ground at their intended destination and one KC-135 landing with a useable right hydraulic system. This was a direct result of a boom operator remembering that the sighting door control valve controls the hydraulic pressure to the A/R components and that leaving the sighting door partially open isolates the leak.

Was this timely and valuable information provided by the young boom's CCTS instructor at Castle? The answer is NO. His Castle instructor was not able to provide every scenario for isolating the A/R components from the hydraulic system. Did the boom operator glean this "nice-to-know" technique through diligent and conscientious study of his Dash One? The answer is still NO. The Dash One does not address this situation. The credit for this information can be given

to the gone-but-not-forgotten old head boom operator who shared his experience and knowledge with a younger airman during a hangar flying session.

Commandwide, we have a younger crew force than a decade ago. Long gone are the days of ARC Light and Young Tiger when crewmembers had the opportunity to routinely demonstrate and refine their skills in an operational theatre. The chance to practice cell formation, execute MITO

"Pilot, Boom, I've got an idea on how to stop this hydraulic leak."

"I'm all ears, Boom," came the reply from the cockpit.

procedures, load cargo or carry passengers has, in the last ten years, been reduced from a day-to-day occurrence to a one time, every six or 12 month proficiency requirement. The "use it or lose it" rule has the tendency to creep into our training program, however, there are four viable methods of counteracting this:

Strive to improve: Learn everything concerning your responsibilities as a crewmember. Keep abreast of changes as they affect your job and maintain a high level of proficiency by practicing new techniques and procedures every time the opportunity presents itself. The boom operator who utilizes Tanker Manual Operation for currency and check rides only is short changing the command, his supervisor and most importantly, himself or herself. Once self-confidence is developed in your position, strive to learn more about the duties of your fellow crewmembers. The return on investing 30 minutes in talking with your pilot about TERPS can be very significant the first time you save your crew from violating an assigned altitude.

Seek out the experience. Promote Hangar Flying within your squadron. There is a wealth of knowledge fortified by years of airmanship spread throughout the command. Much can be

learned in sessions of cross talk in terms of common sense and practical application of techniques and procedures. When was the last time you supervised the loading and unloading of passengers? Talk to some of the experienced, "old head" booms around your squadron and solicit their advice.

Consult the experts. There comes a time in everyone's flying career when the "unexplainable" happens. The radar fails for no apparent reason, the autopilot will not stay engaged, or the contact mode light will not illuminate when a contact is made. How often do you as a SAC crewmember take the initiative to follow up these problems by calling the radar, autopilot, or electric shop to determine why the malfunction occurred? Our aircraft technicians are experts in their specific field and are more than happy to discuss problems encountered in flight. This holds true for your local Field Training Detachment instructors and Boeing Aircraft representatives who are at your disposal to answer questions concerning aircraft flight characteristics and components.

Refer to the written source. A crewmember was overheard stating, "When I'm on alert and can't sleep, I simply pull out the Dash One. The material is so dull I'm usually asleep after one or two pages." Although the Dash One may never be characterized as the Great American Novel, it is a written source document for the majority of our duties. Be familiar with each of its sections as they relate to your responsibilities and the responsibilities of the crew. In addition, broaden your reading interests to magazines such as TIG Briefs, Boeing Service News and Combat Crew.

There are many methods that can be utilized to give each of us an edge in our profession. Use all the resources within your unit and consider the ideas presented here. Soon enough the day will arrive when you will be the old head, laying the foundation for the young crewmembers. Create a good habit pattern now because one day YOU will be the resource being utilized.



SAC's Bombing and Navig

Strategic Air Command is proud to announce the 28th anniversary of its Bombing and Navigation Competition. Initiated in 1948, this competition is one of the oldest traditions in the United States Air Force.

The competition has four objectives: demonstrate strategic bomber and tanker capabilities; promote international relations in a friendly competitive environment; test new equipment, procedures, tactics and concepts; and enhance *esprit de corps* by recognizing crew and unit professionalism.

The 1984 Bomb and Navigation competition will be the largest in SAC's history. Crews will participate from 15 SAC bombardment wings, 15 refueling units including the Air National Guard and Air Force Reserve, and the Tactical Air Command. Bomber units from the RAAF, RAF and USAFE will also travel to the United States to compete in this year's competition.

Strategic Air Command bomb wing competitors include two bomber and two tanker crews from each unit with the exception of the 93d and 380th CCTS instructor personnel. Two KC-135 crews from four ANG units and two KC-135 crews from three USAF Reserve units will also participate.

Additionally, two KC-10 crews will compete from the units at Barksdale and March. Tactical Air Command will be represented by F-111Ds from the 27th Tactical Fighter Wing at Cannon AFB. The Royal Australian Air Force will fly their F-111Cs in the competition for the third time. The crews from down under entered the competition in 1980 and again in 1982. The Australian crews will operate from Mountain Home AFB. The RAF is participating for the first time since



tion Competition - 1984



Maj Richard D. Gaddie,
HQ SAC/DOTN

1979 with their new fighter-bomber, the Tornado. The Tornado is a swing-wing bomber that resembles the F/B-111 in mission and performance. The RAF will be hosted by the 28th Bomb Wing at Ellsworth. For the first time in the history of the competition USAFE will be represented. The 48th Tactical Fighter Wing from RAF Lakenheath, United Kingdom, will participate with the F-111F. Crews from the 48th will operate from McClellan AFB.

An innovation for this year's competition is the addition of inert weapons releases to the scoring equation. Phase one of Bomb Comp 84 will include the release of practice bombs in the Nellis Bombing Range. All bomber aircraft will fly a low level route entering southern Utah and exiting north of Las Vegas, Nevada. Inert weapon releases promise to add more realism into an already challenging competition. The bombers will also try to make their way to the target area while avoiding fighter interceptor aircraft. Units are encouraged to use new ideas, techniques, tactics and innovative procedures they deem necessary to avoid or negate the fighter threat.

The Strategic Air Command is continually searching for ways to improve force effectiveness. A competitive environment is vital to the search for excellence. After each competition, each sortie is analyzed and a compendium of lessons is assembled and discussed by the competitors at the symposium, held at Barksdale AFB, 31 October to 2 November. The lessons learned are the basis for substantial changes in doctrine, training, system modifications, tactics and techniques. Any refinement in weapon systems enriches the cost effectiveness of the defense dollar.



Our squadron transports staff inspection teams, communication teams and battle staffs to different parts of the world on a regular basis. The average flying time among the crewmembers in the -135 is 2900 hours. This particular mission was to Thule Air Base, Greenland, to pick up a staff assistance team and return them to Peterson AFB, Colorado. A thorough mission planning session discussed various subjects including runway environment, possible compass problems and necessary fuel reserves to our worst case alternate.

Lesson 1: The morning of our flight, the weather dispatcher gave forecast winds of 140/20G30. No problem. The active runway at Thule would be runway 16. Are the winds on the weather 175-1 **TRUE** winds or **MAGNETIC** winds? The answer is **TRUE** winds. We normally don't think too much about this because in the U.S. or lower latitudes the variation is normally 5 to 10 degrees. Thus, our winds are approximately 215/20G30 (magnetic), with a RCR which is normally wet and never any greater than 18. A sporting situation, but you have to be **TOUGH** to fly the heavies, right?

Lesson 2: The pilots had approximately 2700 hours apiece. They were familiar with the air base, and one of the pilots had been there the previous week. The runway is 10,000 feet by 150 feet — an old SAC runway. To the south of the field is a bluff that rises approximately 600 feet. Approaches are only to runway 16; you have to circle south of the field to land in the opposite direction. One hour prior to landing, we contacted Thule Metro, who gave us winds of 110/10G18 (true winds). We expected runway 16 with a left crosswind. We planned a normal ILS approach to runway 16. Approach control was giving us winds of 210V230/20G30 (magnetic winds). Switching to tower, the winds were also called as 220/20G30.

Not the left cross wind we were expecting. (We thought that metro was issuing magnetic winds.)

Aircraft control on the approach was normal. Airspeed during the approach was hot, because of the gusting winds. What we didn't know was that the winds on the bluff were from the south,

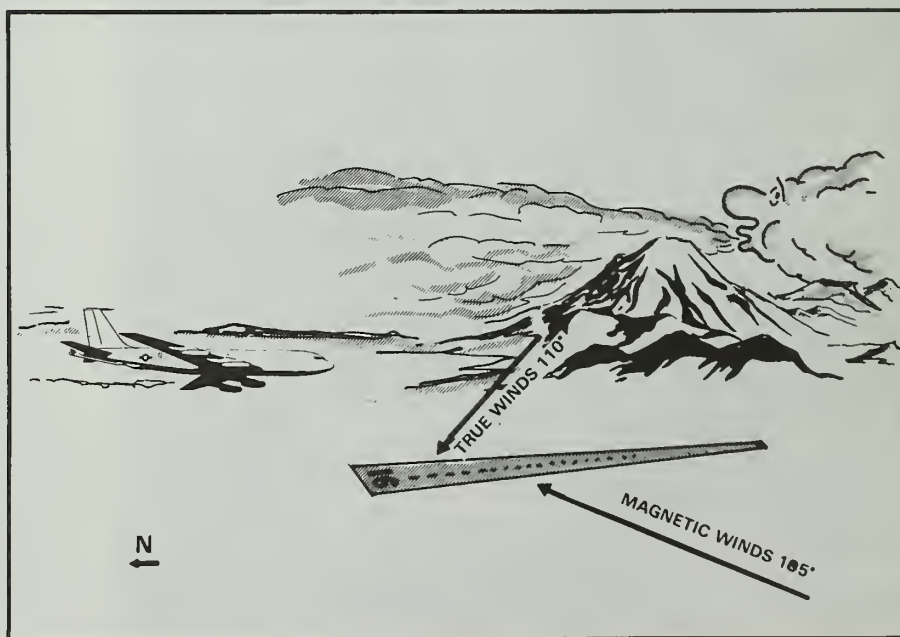
A Thule Noteworthy Experience

Capt Guy J. Wills
8th TDCS
Tinker AFB, Oklahoma

70 to 80 knots. We realized this when we compared the INS winds and ground speed with approach/tower winds. This is a prime example of a wind shear, and the aircraft acted accordingly. During the approach, the crew had briefed the possibility of wind shear and we were well ahead of the situation. When we descended below the bluff, the loss of airspeed and slight descent below ILS glidepath made us keenly aware of the present conditions.

All of these factors created a sporting approach and landing. Good crew co-

ordination and a thorough mission planning session enabled us to arrive safely and complete our mission. However, I feel the lesson to be learned above all else is that you can never be too well prepared or familiar with the landing environment. Read FLIP, the Enroute Supplement, Foreign Clearance Guide, call Base Ops, and glean the knowledge of the other crewmembers around you. The experience you gain from them could help you in the future and mean the difference in the worst of conditions.



'Cat-and-Duck Method' of Instrument Flying



From the student lounge, IFR Inc.,
Wold-Chamberlain Field,
Minneapolis, Minnesota

THE "Cat and Duck" instrument system has received much publicity and is considered to have much merit by those who have not tried it. No reports have been received from those who did try it, and none are expected. Pilots are invited to assess its merits objectively.

Basic rules for the C&D Method of flight under the hood are fairly well known and are, of course, extremely simple. Here's how:

1. Place a live cat on the cockpit floor; because a cat always remains upright, he or she can be used in lieu of a needle and ball. Merely watch to see which way the cat leans to determine if a wing is low, and if so, which one.

2. The duck is used for the instrument approach and landing. Because of the fact that any sensible duck will refuse to fly under instrument conditions, it is only necessary to hurl your duck out of the plane and follow it to the ground.

There are some limitations to the Cat and Duck Method, but by rigidly adhering to the following checklist, a degree of success will be achieved which will surely startle you, your passengers and even an occasional tower operator:

1. **Get a wide-awake cat.** Most cats do not want to stand up at all. It may be necessary to carry a large dog in the cockpit to keep the cat at attention.

2. **Make sure your cat is clean.** Dirty cats will spend

all their time washing. Trying to follow a washing cat usually results in a tight snap roll followed by an inverted spin (flat).

3. **Use old cats only.** Young cats have nine lives, but old, used-up cats with only one life left have just as much to lose as you do and will be more dependable.

4. **Beware of cowardly ducks.** If the duck discovers that you are using the cat to stay upright, it will refuse to leave without the cat. Ducks are no better in instrument conditions than you are.

5. **Be sure that the duck has good eyesight.** Near-sighted ducks sometimes fail to realize that they are on the gages and will go flogging off into the nearest hill. Very nearsighted ducks will not realize they have been thrown out and will descend to the ground in a sitting position. This maneuver is difficult to follow in an airplane.

6. **Use land-loving ducks.** It is very discouraging to break out and find yourself on final for a rice paddy, particularly if there are duck hunters around. Duck hunters suffer from temporary insanity while sitting in freezing weather in the blinds and will shoot at anything that flies.

7. **Choose your duck carefully.** It is easy to confuse ducks with geese because many water birds look alike. While they are very competent instrument flyers, geese seldom want to go in the same direction as you. If your duck heads off for Canada or Mexico, you may be sure you have been given the goose.





PROFESSIONAL PERFORMERS

Aircraft Maintenance

Sgt David L. Ruedy, 376 SW, Kadena AB, Japan, is SSAC's Maintenance Airman of the Month. Currently assigned as the assistant NCOIC in the Avionic Instrument Shop, Sgt Ruedy has distinguished himself as a master technician and professional. Applying sound management techniques, Sgt Ruedy has helped to produce a combined system capability rate of 99% on all aircraft instrument systems. His reputation for salvaging on-time take-offs and ensuring mission ready aircraft is well established throughout the wing. One recent example of his ability involved a KC-135 aircraft preparing for take-off in support of a critical reconnaissance mission. After taxi, the aircrew called in a malfunction in the number two exhaust pressure ratio (EPR) indicating system. Sgt Ruedy dispatched a co-worker to the forward supply location for an EPR transducer. He requested maintenance stands be positioned at the aircraft and assisted in removing the engine cowl-ing. Proceeding to troubleshoot the system, Sgt Ruedy found the EPR transducer to be malfunctioning. He removed the defective unit and was ready to install the new unit when it arrived at the aircraft. Sgt Ruedy's foresight and expeditious actions allowed the tanker to launch on schedule and complete its higher headquarters directed mission with a fully operational EPR system.





Missile Maintenance

SrA Duane S. Meagher, 321 SMW, Grand Forks AFB, is the SAC ICBM Maintenance Airman of the Month. Airman Meagher's performance as an equipment load crew team chief and trainer has been recognized by wing and command evaluators. His extensive knowledge of more than 600 equipment items and the load requirements of six different dispatching work centers ensure that every dispatching team is properly equipped for their intended job. Airman Meagher's response during an exercise bomb threat led to his selection as an IG Professional Performer.

Airman Meagher's contributions have spanned every area of his section's operations. His bench stock monitoring system ensures proper location for each bench item and has greatly enhanced the capabilities of new personnel to locate items. He developed and implemented a new approach to manually back up the automated systems used to track equipment. His system has been adopted throughout his wing. He also developed his section's complete training and quality assurance programs.

Missile Crew

The 308 SMW, Crew R-101, Capt Allen Chandler, MCCC; Capt Joseph Thibault, DMCCC; A1C Gene Rywkewicz, MSAT; and A1C Steve Clayton, MFT, is SAC's Missile Crew of the Month.

While on alert recently, crew R-101 was providing support to a missile handling maintenance team following procedures in order to bring the missile back on alert following a Reentry Vehicle (RV) recycle operation. While performing a "stray-voltage" check on stage I holddowns, the maintenance team encountered one milli-volt (MV) on all upper and lower holddowns, even though the allowable tolerance was 25 MV. Since the stray voltage was below T.O. tolerance, the crew received permission to continue the voltage checks on stage II. The maintenance team performed procedure 1 on stage II and the stray voltage varied from 1 MV to 4.5 MV; however the last contact checked registered four volts. Capt Chandler immediately ordered the team to safe their operations and return to the control center. After performing the electrical deactivation procedures in T.O. 2-6, fig 2-13, the crew performed an "ordnance circuit test" and received an "ordnance unsafe" indication. The crew then troubleshooted the indication with appropriate tech data and found a bent pin on one connector which was causing the stray voltage. The MCCC then called for a priority dispatch of a facility electrical maintenance team. This team arrived and fixed the bent pin and the missile was safely returned to alert. Crew R-101 worked over 16 hours to resolve this perplexing problem. Capt Chandler and his crew responded admirably to the stressful situation and calmly fixed the problem through active and direct leadership.



CANADA GEESE

The start of the northward migration of Canada geese varies with the latitude of the wintering grounds. Some geese begin moving out of refuges in Alabama and Tennessee as early as late January, but most depart from wintering grounds in the Mississippi Flyway between mid-February and mid-March.

Canada geese migrate into the Illinois River valley in appreciable numbers from southern Illinois late in February, reaching peak numbers of 50,000 to 100,000 about mid-March. Between mid-March and the first week in April, these geese depart for the area of the Horicon Marsh area for lakes in Ontario.

In the fall another route extends down the east side of Lake Michigan. It is used by about 90,000 Canada geese. In southwestern Michigan, it divides three ways: (1) One branch swings southwestward to join routes in

Wingbusting Double Crested Cormorant



eastern Illinois extending to the Crab Orchard National Wildlife Refuge, near Carbondale. (2) A second branch continues due south to the Wheeler National Wildlife Refuge, near Decatur, Alabama. The other sub branch continues along the Wabash River to its mouth, where

SAC'S FLYING SAFETY RECORD

CLASS A FLIGHT MISHAPS

YEAR	74	75	76	77	78	79	80	81	82	83	84
TOTAL MISHAPS	8	4	4	4	1	5	4	4	2	2	1
FLYING HOURS 100,000	5.1	4.2	3.9	3.7	3.6	3.6	3.4	3.5	3.5	3.0	2.0
FATALITIES	14	7	22	10	5	7	2	14	9	7	0
RATE	1.6	1.0	1.0	1.1	.28	1.4	1.2	1.2	.58	.65	.32*

* ESTIMATED RATE BASED ON 310,000 FLYING HOURS

8AF	15AF	1984 CLASS A MISHAPS		CLASS B		FLYING HOURS	
		TR-1	JULY	JULY	1	JULY	29,441
4				1984	2		
2				CLASS C		1984	199,641
0				JULY	21		
				1984	155		

one segment of geese heads due south for Kentucky Lake, Tennessee, and the other segment of geese continues along the Ohio River to the Horseshoe Lake Refuge, near Cairo, Illinois. Part of these geese move southward along the Mississippi River to Reelfoot Lake, Tennessee. (3) The bird branch extends almost straight south over Indianapolis, Indiana, and slightly east of Nashville, Tennessee, to the Wheeler National Wildlife Refuge. The two flight lines to the Wheeler Refuge embrace about 45,000 Canada geese.

A third route through Michigan extends south to the Shiawasee National Wildlife Refuge near Saginaw, Michigan, through western Ohio, over Cincinnati, Ohio, and ends at the Hiwassee Wildlife area north of Chattanooga, Tennessee.

Still another main fall route, involving about 80,000 Canada geese, proceeds from the Interlake Region (between Lake Manitoba and Lake Winnipeg) of Manitoba along the Red River Valley of Minnesota to Big Stone Lake, where it branches. The principal branch continues straight south to the Big Sioux River, then along the Missouri River to northwestern Missouri, where it swings southeast to the Swan Lake National Wildlife Refuge in north central Missouri. The smaller branch follows the Minnesota River southeastward to about Mankato, Minnesota. There it turns almost straight south, passing over Des Moines, Iowa, to the Swan Lake Refuge.

Turbosnatching Pintail Duck

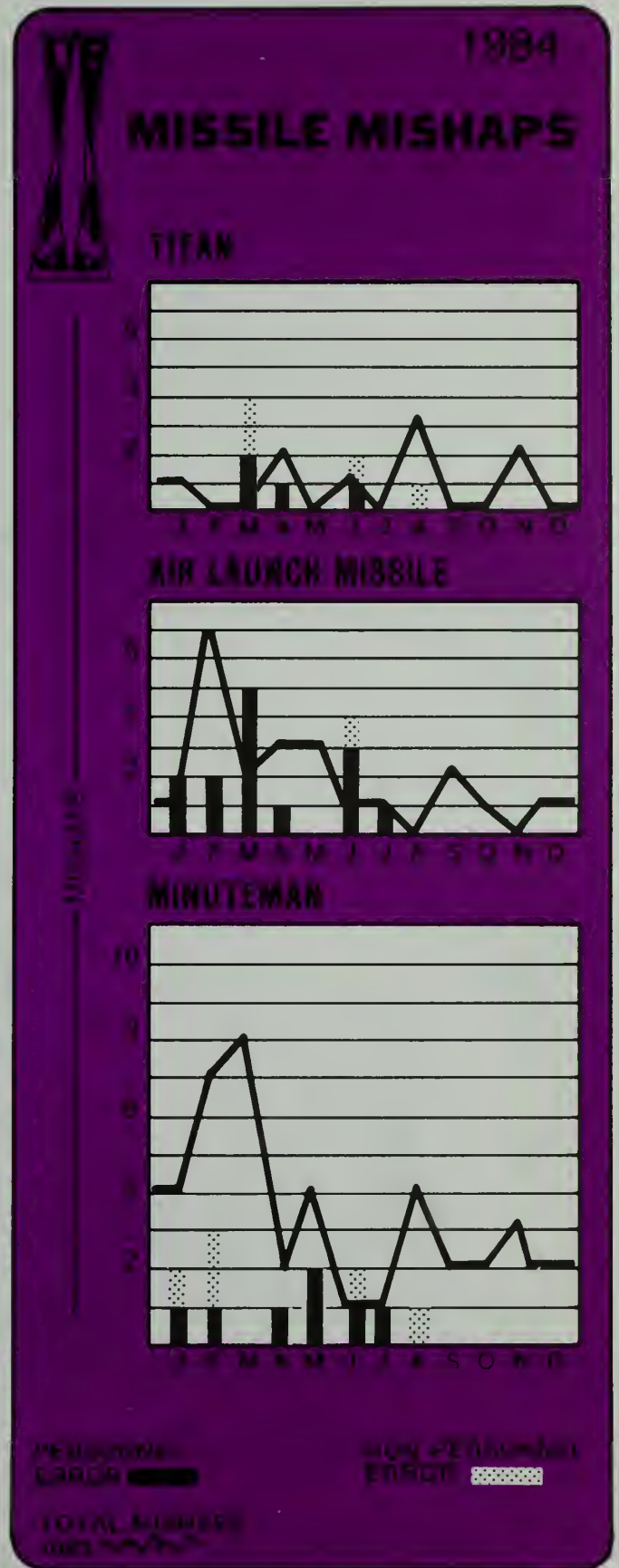


BLUE AND SNOW GEESE

Late in February, almost the entire population of blue and snow geese takes wing for a nonstop flight to northwest Missouri, concentrating particularly in the vicinity of the Squaw Creek National Wildlife Refuge, near Mound City.

As the snow and ice melt the geese move gradually northward. By late March, they have reached the Sand Lake National Wildlife Refuge, northeast of Aberdeen, South Dakota. Peak populations of 200,000 to 400,000 birds are reached between April 10 and 20.

Cont'd



WHISTLING SWANS

The movement of whistling swans from Chesapeake Bay to Lake Erie marshes occurs largely between March 15 and 31. The birds leave the Lake Erie marshes, the Saginaw Bay region of Michigan, and the Green Bay area of Wisconsin between March 20 and April 11.

Perhaps the greatest comfort to the SAC pilot is the fact that to date there have been few known incidents of B-52 or KC-135 windshield penetration. On the other hand, since we know that windshield penetration is possible under certain conditions, the pilot should be aware of what he can do to protect himself and his crew.

There are two simple steps that can be taken to prevent a serious accident from a bird strike:

Keep the windshield anti-icing switch on. This keeps the vinyl between the layers of glass warm and flexible, enabling the glass to withstand a considerably greater impact without penetration of the windshield.

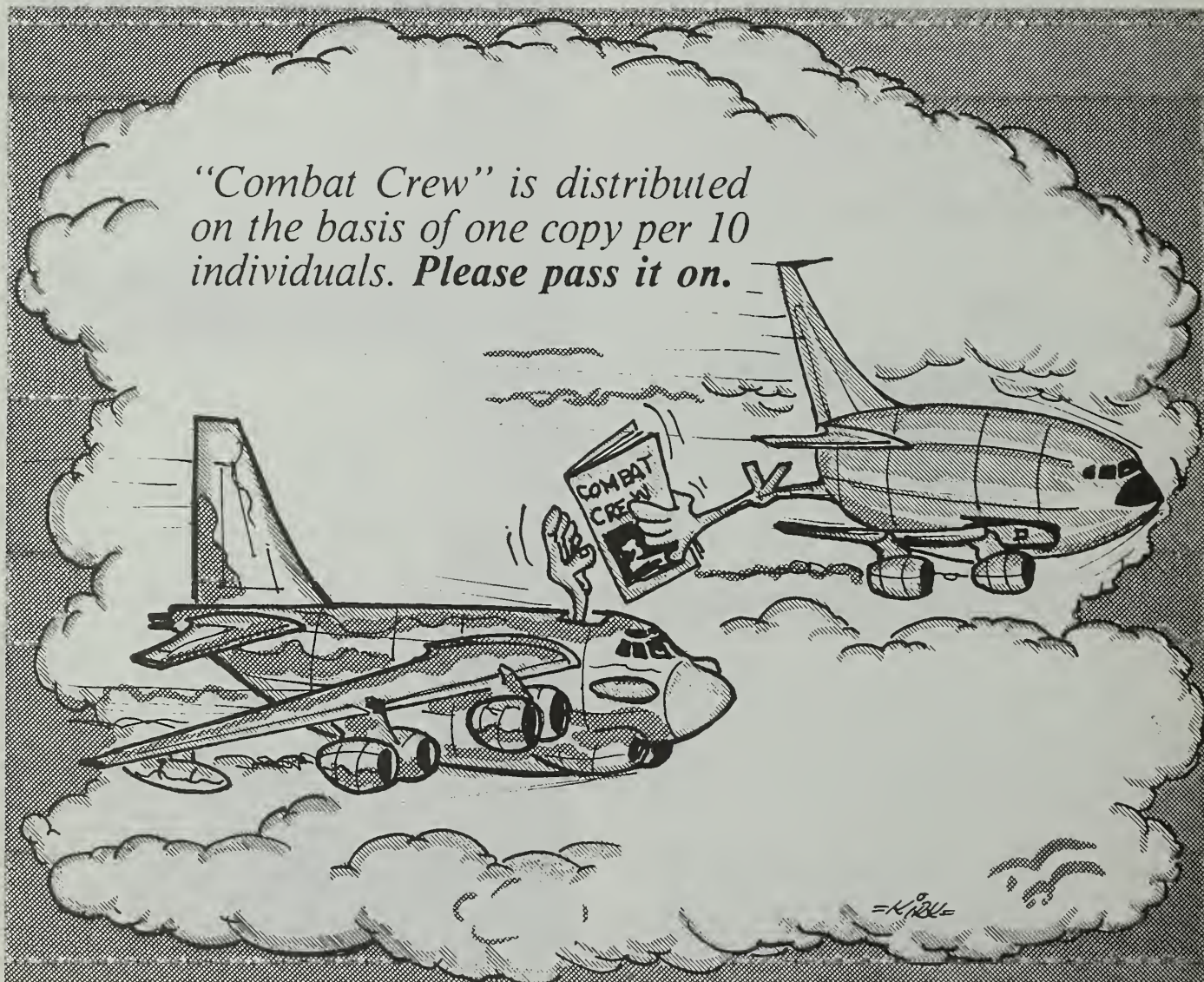
During the low level flight, wear your helmet visor in the down position if visibility permits (one or both

Fanflogging Whistling Swan



pilots). In the event of a windshield bird strike, the visor can reduce serious injury hazard to the pilot and possibly preclude the loss of control of the airplane.

"Combat Crew" is distributed on the basis of one copy per 10 individuals. Please pass it on.





The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system IAW AFR 127-2/SS1.

41 AREFS, Griffiss Crew R-107: P Capt John D Sterrett Jr, CP 1Lt Monica A Vaughn, N 1Lt Kevin B Smith, BO SSgt Robert C Bonner Jr

668 BMS, Griffiss Crew S-11: P Capt Russell T Danwin, CP Capt Salvatore J Baggetta, RN Capt Richard G Miles, N 1Lt John J Dixon, EWO 1Lt Gregg B Bourke, AG SSgt Michael H Weinmann

69 BMS, Loring Crew S-02: P Maj George R Dean, CP Capt Konstantinos J Atsalis, CP Capt Patrick J O'Connor, RN Capt Jon M Langford, N 1Lt Ernest Liberatore, EWO Capt William E Law, G SSgt Claude L Bisson

407 AREFS, Loring Crew R-171: P Capt Robert M McGreal, CP 1Lt Martin P Doebl, N 1Lt Patrick J Bolibrzuch, BO SSgt David E Williams

42 AREFS, Loring Crew E-130: P Maj Douglas R Gibbs, CP 1Lt Christopher J Lewis, N 1Lt Ronald C Mecredy, BO SSgt Stephen C Baudanza

393 BMS, Pease Crew E-35: P Capt Bill Starnes, RN Capt Steven Bruger

46 AREFS, K I Sawyer Crew R-105: P Capt Jeffrey A Moore, CP 1Lt William J Gibbs, N 1Lt Robert F Stammler, BO Sgt Ryan W Cermak

46 AREFS, K I Sawyer Crew E-120: P Capt Stephen W Stubbs, CP 1Lt Anthony T Kern, N 1Lt Donald V McCloskey, BO SrA Michael E Sage

644 BMS, K I Sawyer Crew E-17: FP Capt Taylor A Slate, CP 1Lt Lawrence W McCabe, RN Maj Richard E Vandevor, NN 1Lt James J Hammes, NE Capt David L Just, AG SrA Paul A Lazeroff

644 BMS, K I Sawyer Crew E-35: FP Capt Carl R Wilson, CP 1Lt Paul E Dobracki, RN Capt Keith C Abbott, NN 1Lt John L Kirk, NE 1Lt Stephen P Beecher, AG SSgt Jeffrey S Fannin

43 AREFS, Fairchild Crew S-110: P Maj Larry R Miller CP 1Lt Gary J Carnes, N Capt Dana C Durkee, BO Sgt Chris L Hatley

92 AREFS, Fairchild Crew S-165: P Lt Col Lewis R Sutherland, CP 1Lt William L Erickson, N 1Lt Gordon R Bennett, BO TSgt Ronald L Whitmire

325 BMS, Fairchild Crew R-44: P Capt Daniel Aronson, CP 1Lt James Bryan, R Maj Mike Hicks, N Capt James Kemp, EWO 1Lt William Ferguson, G SSgt Michael Markland

60 BMS, Andersen Crew S-02: AC Capt James F Shanley, CP 1Lt David T Smith, RN Capt Richard G Ruth, N 1Lt James E Edge, EWO Capt Robert T Kadechka, ADG SSgt Russel B Combs

350 AREFS, Beale Crew E-164: P Capt Robert R Fisher, CP 1Lt James L Thompson, N Capt Leroy Both, BO Sgt William D Arnold

44 SMW, Ellsworth Crew R-192: MCCC 1Lt Brian M Burgess, DMCCC 2Lt Scott D Mattson

90 SMW, F E Warren Crew R-105: MCCC 1Lt Lee J Smith Jr, DMCCC 2Lt Richard L Shelton Jr

91 SMW, Minot Crew R-091: MCCC Capt Glen A Woodward, DMCCC 1Lt Frank X Carbajal

308 SMW, Little Rock Crew S-244: MCCC Capt Steve Kierce, DMCCC 1Lt William Latta, MSAT SSgt Gregory Mirabelli, MFT Sgt Charles Lee

321 SMW, Grand Forks Crew R-026: MCCC Capt Clarence M Moore, DMCCC 1Lt Michael J Hargrove

351 SMW, Whiteman Crew S-172: MCCC 1Lt Dan H Reichel, DMCCC 2Lt Eric D Darden

381 SMW, McConnell Crew R-073: MCCC 1Lt David A Scott, DMCCC 2Lt James O Howe III, MSAT A1C Eric D Watjen, MFT A1C Michael D Groshart



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